CAIT
Center for Advanced Infrastructure & Transportation
Rutgers, The State University of New Jersey

QUARTERLY PROGRESS REPORT

Project Title:	Manual of Guidelines for Inspection of ITS Equipment and Facilities
RFP NUMBER:	NJDOT RESEARCH PROJECT MANAGER: Nahzat Aboobaker
TASK ORDER NUMBER: TO 181 / RU Acct 4-26652	PRINCIPAL INVESTIGATOR: Dr. Kaan Ozbay
Project Starting Date: 1/1/2006 **Original** Project Ending Date: 12/31/2007 **Modified Completion Date:**	Period Covered: 4th quarter 2006

Task #	Task	% of Total	Fixed Budget	% of Task this quarter	Cost this quarter	% of Task to date	Total cost to date
1	Mobilization	4.18%	$ 15,000.00	0.0%	$ -	100.0%	$ 15,000
2	Literature Search	2.79%	$ 10,000.00	0.0%	$ -	100.0%	$ 10,000
3	Literature Review	8.37%	$ 30,000.00	30.0%	$ 9,000	30.0%	$ 9,000
4	Manual Outline	5.81%	$ 20,824.00	0.0%	$ -	0.0%	$ -
5	Manual Sections	26.41%	$ 94,659.00	0.0%	$ -	0.0%	$ -
6	Individual Sections	19.53%	$ 70,000.00	0.0%	$ -	0.0%	$ -
7	Software	11.16%	$ 40,000.00	5.0%	$ 2,000	5.0%	$ 2,000
8	Training Plan	5.58%	$ 20,000.00	0.0%	$ -	0.0%	$ -
9	Training Implementation	10.60%	$ 38,000.00	0.0%	$ -	0.0%	$ -
10	Final Report and QR	5.57%	$ 20,000.00	0.0%	$ -	0.0%	$ -
11		0.0%	$ -	0.0%	$ -	0.0%	$ -
12		0.0%	$ -	0.0%	$ -	0.0%	$ -
13		0.0%	$ -	0.0%	$ -	0.0%	$ -
14		0.0%	$ -	0.0%	$ -	0.0%	$ -
15		0.0%	$ -	0.0%	$ -	0.0%	$ -
16		0.0%	$ -	0.0%	$ -	0.0%	$ -
17		0.0%	$ -	0.0%	$ -	0.0%	$ -
18		0.0%	$ -	0.0%	$ -	0.0%	$ -
19		0.0%	$ -	0.0%	$ -	0.0%	$ -
20		0.0%	$ -	0.0%	$ -	0.0%	$ -
	TOTAL	100.0%	$ 358,483		$ 11,000		$ 36,000

Blue text is entered once at the beginning of the project
Green text is updated ever quarter
Black text is automatically updated or static

Project Objectives:

1. Develop a complete Manual of Guidelines for the acceptance, inspection, testing and maintenance of ITS equipment and facilities by knowledgeable and experienced NJDOT personnel and or subcontractors.
2. Develop a field inspection check-list, condition survey to achieve the first goal. These should then be implemented as a computer based application so that they can be installed on PDAs for ease of use in the field.
3. Develop a computerized ITS Maintenance Management System. This system should be installed on desktop computer at the TOC and should contain the documentation for all of the inspection,

survey and maintenance procedures, required subsystem spares, spare parts that , are available in the TOCs.
4. Computerized ITS Maintenance Management System should possess the capability for generating various condition reports, system and subsystem status, life prediction scenarios that can be ultimately for budget projections and preparation.
5. Provide for the upgrading of the guidelines that can be employed as designs, subsystems change and new ones are added, etc.
6. Train forty personnel in the use of the Manual and the software.

Project Abstract:

NJDOT does not currently have ITS acceptance and maintenance inspection manual (NJDOT RFP - Project 2005-13). This manual is needed as a reference document to assist the Department's inspectors, ITS design and traffic operations and ITS maintenance personnel to ensure effective inspection of ITS facilities. This manual should be a comprehensive reference document that has separate installation (construction) and maintenance sections.

1. Construction section should definitely cover the following areas (but should not be limited to these only):
   - installation and repair of fiber optic communications lines including cable pulling, jetting, splicing, termination cables, patch panels, test equipment,
   - use of approved drawings and catalogue cut submissions, CCTV's, camera poles, VMS's, HAR systems, system detectors, tag readers,
   - energizing the cabinet, backup power,
   - wiring of ITS devices in the field and at the Traffic Operation Center (TOC), component integration into existing systems,
   - documentation and verification of ITS device communication protocols.
2. Maintenance sections will cover the following areas (but should not be limited to these only):
   - training by contractors,
   - acceptance testing,
   - maintenance schedules for ITS systems and devices,
   - troubleshooting, spare parts inventory, configuration management and disaster recovery, etc.

A wide variety of engineers including civil, mechanical, electrical, software and computer, and communication engineers, are required to design and construct ITS facilities. ITS device manufacturers, system vendors, suppliers, and contractors, etc., develop and provide drawings, guides, manuals, inspection procedures, maintenance procedures. Thus, there is a vast amount of knowledge that is needed to be extracted and then incorporated into a Manual of Guidelines for effective Inspection of ITS Facilities by knowledgeable, experienced NJDOT and well-trained inspectors and or subcontractors. The major goal of this project is to provide the tools necessary to inspect and maintain New Jersey's ITS facilities to these stakeholders.

1. Progress this quarter by task:

Task 2: Literature Search: This task is completed.

Task 3: Literature Review:

Below a summary of our efforts in this quarter:

- We continued our review of the available literature related to manual preparation.

- We prepared a draft literature review report and submitted it to NJDOT contacts for comments.
- We summarized and incorporated information from additional documents and reports and manuals from NJDOT.
- We received the responses to the revised surveys.
- We added the results of the surveys in our draft literature review report.
- We have completed the first part of the literature review, which is based on the written material from NJDOT and surveys.
- In the second phase of this task, well-structured interviews will be conducted with NJDOT personnel. We have prepared a draft version of the interviews and presented it to project's technical contact.

Task 4: Manual Sections

- We have identified sections of the Manual and grouped the checklist items determined as a result of Task 2and 3 accordingly.
- We have also prepared a list and archive of all the documents used to develop fist version of the manual based on written material

Task 5: Individual Sections

- We have started working on the individual sections of the Manual based on the results of task 2, 3,and 4. We gave a first version of these sections to NJDOT personnel for their review, comments, and additions. This was done as a follow up to a meeting at Rutgers on the 17th of November 2206. We hope to get feedback before the end of 2006.

Task 7: Software

- We continued to build a software implementation architecture in terms of the work flow of the final software tool.
- We also continued to implement a sample shell to demonstrate this work flow.

2. Proposed activities for next quarter by task

- We will continue to work on Tasks 3 and 7.

3. List of deliverables provided in this quarter by task (product date)

- Draft literature review report.
- During this quarter, on July 27th, 2006, we met with NJDOT project contacts to discuss the survey and our information needs. We also met with NJDOT project manager on July 17th 2006, to give update on our progress.

4. Progress on Implementation and Training Activities

5. Problems/Proposed Solutions

We have received the contract in April, 2006. We received the contractual material needed for the subcontract from ORA We had to slightly revise their work plan based on the overall picture of the project. A subcontract will be issued based on the revised work plan.

Total Project Budget	358,483
Modified Contract Amount:	
Total Project Expenditure to date	66,097
% of Total Project Budget Expended	18.4%

NJDOT Research Project Manager Concurrence: _____ Date: _____